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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/265,432	03/10/99	TERADA	A 392.1627/JDH

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EXAMINER	
NGUYEN, T	
ART UNIT	**PAPER NUMBER**
3661	9

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 09/265,432	Applicant(s) Terada et al
	Examiner Thu Nguyen	Art Unit 3661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *three* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Apr 5, 2001* .

2a) ☒ This action is **FINAL.** 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-16* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☒ The proposed drawing correction filed on *Apr 5, 2001* is: a) ☒ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☐ Notice of References Cited (PTO-892)
16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
18) ☐ Interview Summary (PTO-413) Paper No(s). _____
19) ☐ Notice of Informal Patent Application (PTO-152)
20) ☐ Other:

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

In the amendment page 3, last line, the wrist "1 1a" is not found in figure 2. Figure 2 indicates wrist 1a, but the numerical "1" denotes rotational axis.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Bannister (EP 0265661).

As per claim 1, Bannister discloses a robot system which comprises a movable arm including a plurality of links (fig.2) and is controlled by a robot controller C3 (page 4, second column, line 24-28); and a tool unit 14 (fig.2) having a effecting end biased with respect to a final rotational axis 23 (fig.2) and is directed to the final rotational axis (fig.2).

As per claim 2, Bannister discloses including a wrist 19 (fig.2) and providing the final rotational axis 23 (fig.2) at the wrist.

4. Claims 3-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Roder (U.S Patent No. 4,694,139).

As per claim 3, Roder discloses a robot system which comprises: a movable arm with a plurality of links and joints (col.9, lines 63-68; col.10, lines 1-2; fig.2); the movable arm is controlled by a robot controller (col.10, lines 52-56; col.3, lines 9-13, lines 22-30; col.15, lines 65-68); and a tool unit (col.10, lines 47-52; fig.2) mounted on a distal end of the movable arm and having an effecting end and a variable axis for varying a position or direction of the effecting end with respect to a final rotational axis 4 (fig.7) of the movable arm (col.10, lines 47-52).

As per claim 4, Roder discloses including a linear axis (col.10, lines 8-14).

As per claim 5, Roder discloses that the linear axis allows the effecting end 15 (fig.11) to move in perpendicularly with the final axis 4 (fig.7); (fig.11).

As per claim 6, Roder discloses including a rotary axis (col.10, lines 47-52).

As per claim 7, Roder discloses including a linear axis and a rotary axis as the variable axis (col.10, lines 8-14, lines 47-52).

As per claim 8, Roder discloses a robot system which comprises a movable arm with a plurality of links (col.9, lines 63-68; col.10, lines 1-67; col.11, lines 1-26), the movable arm is controlled by a robot controller (col.3, lines 9-13, lines 22-30; col.15, lines 65-68); and a tool unit (col.10, lines 47-52; col.21, lines 13-68; col.22, lines 1-2) mounted on the distal end of the movable arm 17 (fig.29). The tool unit has an additional rotational axis 8 (fig.29) bias with respect to the final rotational axis 17 (fig.29) of the movable arm and the effecting end 15 (fig.29) is biased with respect to the additional rotational axis 8 (fig.29) and is directed to the additional axis 8 (fig.29).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roder (U.S Patent No. 4,694,139).

As per claim 9, 11, Roder discloses a method of machining a work piece, the method comprises the steps of: aligning the work piece so that it is aligned with the central axis of the final rotational axis 4 (fig.15); and rotating the final rotary axis to perform machining on the work piece (Col.11, lines 2-4). Roder does not discloses aligning the work piece so that the central axis of the work piece is aligned with the central axis of the final rotational axis. However, Roder discloses a link 49 with adjustable length (arrow 48 (fig.15)), it would have been obvious to a person of ordinary skill in the art at the time the invention was made to align the central axis of the work piece to the rotational axis of the final rotational axis by adjusting the length 49 of the robot of fig.15.

As per claim 10, Roder discloses including a wrist 3 (fig.15) and the final rotational axis 17 (fig.15) at the wrist.

As per claim 12-15, refer to discussion in claims 4-7 above.

As per claim 16, refer to discussion in claim 3 and 9 above. Further, Roder discloses driving the variable linear axis in synchronism with the rotation of the final rotational axis to perform a hole cutting on the work piece (col.19, lines 52-58, lines 32-36).

Response to Arguments

Applicant's arguments filed April 5, 2001 have been fully considered but they are not persuasive.

In response to applicant's argument on claim 1 and 2 page 13, Bannister does disclose a robotic arm 18 (fig.2) with at least one forearm link 21 (fig.2) and an arm link (the slanted link extended from the base 20 fig.2), which are connected by joints. Sections 25, 27 (fig.2) are not the robot arm, but rather, the wrist of the robot arm (col.4, lines 6-15). The rolling axis 26, 22, and 19 discussed by applicant are not joints, but seems to be the axis of rotation which are similar to the axis 1 in fig.2 of the present application. Applicant should be noted that the entire specification of the present application does not seem to disclose the complete structure of the robot with links and joints except in page 2 (last line) and page 3, lines 1-6, which is, in fact, just the repeat statement of claim 1. Since a robot constructed with links and joins are just the very well known structure, the statement in page 2 and page 3, lines 1-6 is considered as being a sufficient disclosure of a general robot structure. However, the links and joints are understood as the very well known links and joints almost any mechanical robot should have. If applicant believes that the links and joints of the robot of the present application is significantly different than the prior art, applicant should clearly point out in the independent claims and should disclose in the specification. Further, examiner believes the main issue of the present application involves the section from last link (or last joint) of the robot arm toward the end effector of the arm (fig.2), not the entire robot with several links and joints.

Further, examiner interprets the final rotational axis of the robot arm as the axis 23 (fig.2), not the axis 22 as explained by applicant, because axis 23 (fig.2) is really the final rotational axis of the robot arm of Bannister, the axis 22 discussed by applicant is the axis of the wrist of the robot, not of the movable arm. Since claim 1 states "a final rotational axis *of said movable arm*", examiner believes that the final rotational axis 23 (fig.2) meets the claim limitation. With the axis 23 (fig.2) as the final rotational axis of the robot arm, the end effector 14 is biased 90 degree with respect to the final axis 23 and is directed toward axis 23 (fig.2). The scope of claim 1 encompasses Bannister's teachings.

In response to applicant's argument on claims 3-8 in page 14 and page 15, lines 1-9, there are several misconception in the applicant's argument. Examiner agrees with applicant that the X, Y, and Z are not the links but rather they are the coordinate direction of moving. Since fig.1 of Roder is not very well numbered, examiner could not indicate the exact area, but examiner really means the guidance mechanical parts underneath the X, Y, Z indicator. The detailed structure of the machine in fig.1 is depicted in fig.2-4 as disclose by Roder (col.9, lines 63-68). These detail structure in figure 2-4 clearly discloses the links and joints of the machine in figure 1. For better explanation, relevant columns and lines taught by Roder is cited. Roder does disclose a movable arm with link and joins in fig.2 and col.9, lines 63-68; col.10, lines 1-2 clearly discloses several axis of motion which are well known to be defined at links and joints. Col.10, lines 47-52 discloses a tooling unit with additional rotational axis. Col.10, lines 4-5 discloses an arm effecting

end. Col.21, lines 34-42 and figures 28-29 clearly disclose an additional rotational axis 8 and the end effector 15 is directed toward the rotational axis.

Details explained by applicant in page 15, first paragraph and last paragraph and page 16 are not claimed in the independent claims. Further, the tool unit of the present application seems to be just a part of the movable arm. Independent claims do not explicitly highlight the difference between the tool unit of the present application from the tool unit taught by Roder in col.10, lines 47-52. With the capability to alter the tool unit in col.10, lines 47-52 to different configurations in fig.5-29, the tool unit disclosed in col.10, lines 47-52 appears to be similar to the claimed tool unit of the present application.

Refer to explanation above for explanation on the details argued by applicant in page 17.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any response to this final action should be mailed to:

Box AF

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 305-7687, (for formal communications; please mark "EXPEDITED PROCEDURE")

Or:

(703) 305-7687 (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park V, 2451 Crystal Drive, Arlington. VA., Seventh Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thu Nguyen whose telephone number is (703) 306-9130. The examiner can normally be reached on Monday-Thursday from 8:00 am to 6:00 pm ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Cuchlinski, can be reached on (703) 308-3873. The fax phone number for this Group is (703)305-7687 .

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703)308-1113.

NTV

May 17, 2001

WILLIAM A. CUCHLINSKI, JR.
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